

REMARKS

This application now contains claims 10 through 23. Original claims 1 through 8 have been cancelled. Claims 10 through 17 have been amended. Claims 18 through 23 are newly presented. Claims 10 and 17 have been rewritten in independent form to include all limitations of original claims 1 and 2 respectively. These claims have been further amended to expressly require introduction of the defined lubricant into the crankcase of a four stroke medium speed compression-ignited (diesel) marine engine. Newly presented claims 18 through 23 depend from claim 17, but otherwise correspond to claims 11 through 16, respectively. All claims are now directed specifically to a method of lubricating the crankcase of a four stroke medium speed compression-ignited marine engine using a defined, dispersant-free lubricating oil composition.

The claims of this application were finally rejected under 35 USC Section 103(a) for being unpatentable over U.S. Patent No. 4,283,294 to Clarke (hereinafter referred to as "the Clarke patent"); or U.S. Patent No. 6,114,288 to Fujitsu et al. (hereinafter referred to as "the Fujitsu et al. patent"). These rejections were upheld by the Board of Patent Appeals and Interferences in a decision mailed November 24, 2004.

The Board agreed that the application was unpatentable over the Clarke patent based, *inter alia*, on the assertion that the claims did not require that the defined lubricating oil composition be added to the crankcase of the marine diesel engine. The claims, as amended now require addition of the defined lubricating oil composition to the crankcase of a medium speed compression ignited marine diesel engine. As noted previously, the Clarke patent is directed to marine diesel cylinder lubricants (MDCL) which, in two-stroke engines, are added to a diesel fuel and burned together with the fuel in operation of the engine. The crankcases of such two stroke engines are lubricated separately with a "system" oil. As would be known to those skilled in the art, system oils have invariably contained a dispersant, and have a relatively low TBN (since the bulk of the acid neutralization function is provided by the extremely high TBN cylinder lubricant). One skilled in the art would recognize that, as a cylinder lubricant for a two stroke engine is burned with the fuel there is no need for a dispersant that maintains sludge and asphaltenes in suspension within the oil since the oil is not continuously recirculated through the engine. One skilled in the art would further understand that cylinder lubricants have a function that differs from that of crankcase lubricants and would not be led to add a cylinder lubricant to an engine crankcase absent a specific teaching that a cylinder lubricant was also suitable for use as a crankcase lubricant. The Clarke patent provides no such teaching and thus, would not render obvious the presently claimed method. Further, the Clarke patent does not differentiate between carboxylate detergents and other detergents, such as phenates and sulfonates and, therefore, fails to suggest

the very crux of the invention, which is that at high TBN levels, the use of a carboxylate detergent causes asphaltenes to be maintained in suspension within a crankcase lubricating oil, in the absence of conventional dispersants. Therefore, the Clarke patent fails to render obvious the presently claimed invention under Section 103.

The Board maintained the rejection regarding the Fujitsu et al. patent based, *inter alia*, on the assertion that the TBN of the compositions described in the Fujitsu et al. patent could have a TBN within the presently claimed range because the reference teaches that the “metallic detergents C and D (calcium salicylate) of Fujitsu’s examples have Ca contents of 7.2 and 10.3 mass% and TBN of 340 and 290 mg KOH/g, respectively”. Thus, it appears that the Board erroneously believed that the TBN of a lubricant could be determined by multiplying the TBN of the detergent by the mass% of calcium. However, as would be apparent to those skilled in the art, this is incorrect; the TBN of the lubricant is a function of the TBN of the detergent and the overall amount of detergent in the lubricant. Thus, exemplified lubricant 2 of the Fujitsu et al. patent, which contained 1.3 mass % of the detergent C and 3.4 mass % of detergent B would have a compositional TBN of only 7.22; and comparative lubricant 8, which contained 5 mass % of detergent D would have a compositional TBN of only 19.25.

The relatively low TBN of the exemplified lubricants, the industry standard tests described, the use of organic friction modifiers and other factors would make clear to those skilled in the art that the Fujitsu et al. patent is directed to crankcase lubricants for passenger car engines, as opposed to marine diesel engines. Although one skilled in the art may apply the teachings specifically claimed in the reference to marine diesel engines (e.g., one skilled in the art may expect that the claimed combination of detergents and ZDDP components provide improved wear protection as in a passenger car engine), one skilled in the art would not be led to apply the general teaching of the patent specification to marine diesel engines. Commercialized marine diesel engine lubricants, as well as passenger car lubricants have invariably contained dispersants. The use of lubricating oil dispersants are particularly necessary in marine diesel lubricants because of the low quality fuels usually associated with such engines, which fuels contain asphaltenes that contaminate the lubricant via blowby gasses. The fact that, in describing dispersants; the selection of which are not germane to the invention claimed, the Fujitsu et al. patent uses language suggesting that such components are optional, would not lead one skilled in the art to attempt to operate a marine diesel engine with a lubricant containing no dispersant. The Fujitsu et al. patent does not explicitly state that any useable lubricants free from dispersant could be formed and, all exemplified materials of the Fujitsu clearly contain dispersant (see description of “other additives”). Further, the invention is directed to the discovery that the use of high TBN lubricants containing only carboxylate detergents allows for the suspension of asphaltenes in the absence of

dispersant. Such an invention is clearly not suggested by the Fujitsu et al. patent which fails to describe (1) an environment in which asphaltene contaminate the lubricant, or (2) a high TBN (at least 25) lubricant. Thus, applicants submit that the Fujitsu et al. patent also fails to render obvious the amended claims of this application under Section 103.

For the reasons set forth above, applicants believe that the cited prior art references fail to fairly suggest the method now claimed. Therefore, applicants respectfully request that all rejections presented under Section 103 be withdrawn and the above-identified patent application now be passed to issue.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jacob M. Levine".

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